

ABSTRACT

METHOD AND APPARATUS FOR EARLY DETECTION OF DTMF SIGNALS IN VOICE TRANSMISSIONS OVER AN IP NETWORK

A method and apparatus for early detection of in-band DTMF signals in voice transmissions over an IP network are disclosed. Using a digital signal processor, whenever any indication of signals possibly corresponding to the signals characteristic of DTMF tones are detected, packets of data that would otherwise be sent over the IP network are delayed and temporarily stored in a buffer. Buffering the data packets provides a period of time for digital signal processing techniques to reliably determine whether the characteristics of the detected signal are sufficient to characterize it as a DTMF signal. If a determination is made that the signal has the necessary characteristics of a valid DTMF signal, the buffered packets are discarded and a special control packet is sent formatted to convey to the recipient characteristic information for the detected DTMF signal sufficient to allow the DTMF signal to be generated by a DTMF generator. If a determination is made that the signal does not have the necessary characteristics of a valid DTMF signal, the buffered packets are transmitted. The disclosed method and apparatus is effective to remove DTMF signals from RTP packet transmissions, and to replace the DTMF signals with RTP control packets.